

CLAIMS

We claim:

1. A method for sanitation using at least one bacteriophage, comprising:
storing the at least one bacteriophage in a container; and
5 applying the at least one bacteriophage to a surface to be sanitized with a
dispersing mechanism.
2. The method of claim 1, wherein the at least one bacteriophage
comprises a bacteriophage cocktail.
3. The method of claim 1, wherein the step of applying the at least one
10 bacteriophage to a surface to be sanitized with a dispersing mechanism comprises:
spraying the at least one bacteriophage on the surface to be sanitized.
4. The method of claim 1, wherein the step of applying the at least one
bacteriophage to a surface to be sanitized with a dispersing mechanism comprises:
transferring the bacteriophage from a transfer vehicle to the surface.
- 15 5. The method of claim 5, wherein the transfer vehicle is selected from
the group consisting of a towel, a sponge, a paper product, a towelette, a roller, and a
brush.
6. The method of claim 1, wherein the step of applying the at least one
bacteriophage to a surface to be sanitized with a dispersing mechanism comprises:
20 applying the bacteriophage to the surface with a hose.
7. The method of claim 1, wherein the step of applying the at least one
bacteriophage to a surface to be sanitized with a dispersing mechanism comprises:
applying the bacteriophage to the surface from a sprinkler.
8. The method of claim 1, further comprising the step of flushing the

surface with water.

9. The method of claim 1, wherein the surface is located in an area selected from the group consisting of livestock pens, live stock feeding areas, live stock slaughter areas, and live stock waste areas.

5 10. The method of claim 1, wherein the surface is located in an area selected from the group consisting of a hospital room, an operating rooms, a bathroom, an intensive care unit, and a waiting room.

11. The method of claim 1, wherein the surface is located in at least one of a house, a dormitory, a hospital, a barracks, a restaurant, a theater, a concert hall, a
10 museum, a train station, an airport.

12. The method of claim 1, wherein the surface is located on an object selected from the group consisting of a knife, a shovel, a rake, a saw, and a livestock handling device.

13. The method of claim 1, wherein the surface is located on an object
15 selected from the group consisting of a bed, a chair, a wheelchair, a gurney, a surgical table, an operating room floor, and an operating room wall.

14. The method of claim 1, wherein the surface is located on an object selected from the group consisting of an electrocardiograph, a respirators, a cardiovascular assist device, a patient care device, a balloon pump, an infusion
20 device, a television, a monitor, a remote control, and a telephone.

15. The method of claim 1, wherein the surface is located on military equipment.

16. The method of claim 15, wherein the military equipment is selected

from the group consisting of an aircraft, a vehicle, electronic equipment, a uniform, personal gear, and a weapon.

17. The method of claim 1, wherein the step of storing the at least one bacteriophage comprises:

5 storing the at least one bacteriophage under conditions to maintain its activity for a predetermined amount of time.

18. The method of claim 17, wherein the step of storing the at least one bacteriophage under conditions to maintain its activity comprises:

storing the bacteriophage at a predetermined temperature.

10 19. The method of claim 17, wherein the step of storing the at least one bacteriophage under conditions to maintain its activity comprises:

storing the at least one bacteriophage at a predetermined pressure.

20. The method of claim 17, wherein the step of storing the at least one bacteriophage under conditions to maintain its activity comprises:

15 storing the at least one bacteriophage in a nonaqueous solution.

21. The method of claim 1, further comprising:

storing the at least one bacteriophage in an inactive state; and mixing the at least one bacteriophage with an agent before dispersing the at least one bacteriophage.

22. The method of claim 21, wherein step of storing the at least one bacteriophage in an inactive state comprises:

storing the at least one bacteriophage is stored in a freeze-dried state.

23. The method of claim 21, wherein the steps of mixing the at least one bacteriophage with an agent before dispersing the at least one bacteriophage and applying the at least one bacteriophage to a surface to be sanitized with a dispersing

mechanism are performed substantially simultaneously.

24. A sanitation device that dispenses at least one bacteriophage, comprising:

- 5 a container;
at least one bacteriophage stored in the container; and
a dispersing mechanism that disperses the at least one bacteriophage from the container.

25. The device of claim 24, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

- 10 26. The device of claim 24, further comprising: at least one agent.

27. The device of claim 25, wherein the at least one agent is selected from the group consisting of water, salts and buffering agents.

- 15 28. The device of claim 24, wherein the dispersing mechanism is selected from the group consisting of a fogging mechanism, a trigger spray mechanism, a pump spray mechanism, a hose, a mister, and a sprinkler.

29. The device of claim 24, wherein the dispersing mechanism is a transfer vehicle selected from the group consisting of a towel, a sponge, a paper product, a towelette, a roller, and a brush.

- 20 30. The device of claim 24, wherein the dispersing mechanism is a nozzle.

31. The device of claim 24, wherein the container is pressurized.

32. The device of claim 24, further comprising:
a device for maintaining the at least one bacteriophage at a temperature and
condition sufficient to maintain the activity of the at least one bacteriophage.
- 5 33. The device of claim 24, wherein the container comprises: a
separate storage tank for each of the at least one bacteriophage.
34. The device of claim 25, wherein the container further comprises: a
separate storage tank for storing each of the at least one agents.
35. The device of claim 25, further comprising:
a device for mixing the at least one bacteriophage with the at least one agent.
- 10 36. The device of claim 24, wherein the at least one bacteriophage is
freeze-dried.
37. The device of claim 24, wherein the at least one bacteriophage is
mixed in a nonaqueous solution.
38. The device of claim 24, wherein the device is portable.
- 15 39. The device of claim 24, further comprising:
a trigger device for activating the dispersing mechanism.
40. A method for poultry processing sanitation with at least one
bacteriophage, comprising:
applying the at least one bacteriophage to fertilized eggs.
- 20 41. The method of claim 40, wherein the step of applying the at least one
bacteriophage to fertilized eggs comprises:
applying an effective amount of the at least one bacteriophage to fertilized

eggs in order to reduce a concentration of at least one bacteria.

42. The method of claim 40, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

43. A method for poultry processing sanitation with at least one
5 bacteriophage, comprising:
applying the at least bacteriophage to at least one freshly-hatched bird.

44. The method of claim 43, wherein the step of applying the at least one bacteriophage to at least one freshly-hatched bird comprises:
applying an effective amount of the at least bacteriophage to at least one
10 freshly-hatched bird in order to reduce a concentration of at least one bacteria.

45. The method of claim 43, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

46. A method for poultry processing sanitation with at least one bacteriophage, comprising:
15 providing drinking water containing the at least bacteriophage.

47. The method of claim 46, wherein the step of providing drinking water with the at least bacteriophage comprises:
providing drinking water with an effective amount of the at least bacteriophage in order to reduce a concentration of at least one bacteria.

48. The method of claim 46, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

49. A method for poultry processing sanitation with at least one bacteriophage, comprising:

providing food with the at least bacteriophage.

50. The method of claim 49, wherein the step of providing food with the at least bacteriophage comprises:

5 providing food with an effective amount of the at least bacteriophage in order to reduce a concentration of at least one bacteria.

51. The method of claim 49, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

52. A method for poultry processing sanitation with at least one bacteriophage, comprising:

10 applying the at least one bacteriophage to post-chill birds.

53. The method of claim 52, wherein the step of applying at least one bacteriophage to post-chill birds comprises:

applying an effective amount of at least one bacteriophage to post-chill birds in order to reduce a concentration of at least one bacteria.

15 54. The method of claim 52, wherein the at least one bacteriophage comprises a bacteriophage cocktail.

55. The method of claim 52, wherein the step of applying at least one bacteriophage to post-chill birds comprises:

spraying the post-chill birds with the at least one bacteriophage.

20 56. The method of claim 52, wherein the step of applying at least one bacteriophage to post-chill birds comprises:

washing the post-chill birds with the at least one bacteriophage.

57. A method for poultry processing sanitation with at least one

bacteriophage, comprising:

misting an area in which at least one bird occupies with at least one bacteriophage.

5 58. The method of claim 52, wherein the step of misting an area in which at least one bird occupies with at least one bacteriophage comprises:

misting the area with an effective amount of at least one bacteriophage to reduce a concentration of at least one bacteria.

10 59. A method for foodstuff packaging, comprising:
providing foodstuff for packaging:
applying at least one bacteriophage to the foodstuff; and
packaging the foodstuff with a packaging material.

60. The method of claim 59, wherein the step of applying at least one bacteriophage to the foodstuff comprises:
spraying the at least one bacteriophage on the foodstuff.

15 61. The method of claim 59, wherein the step of applying at least one bacteriophage to the foodstuff comprises:
applying the at least one bacteriophage to the packaging material.

20 62. The method of claim 61, wherein the step of applying the at least one bacteriophage to the packaging material comprises:
spraying the packaging material with the at least one bacteriophage.

63. A method for foodstuff packaging, comprising:
providing a package containing the foodstuff; and
inserting a matrix containing at least one bacteriophage into the package.

64. The method of claim 63, wherein the matrix comprises a

biodegradable matrix that releases the at least one bacteriophage at a desired rate as the biodegradable matrix degrades.

65. The method of claim 63, wherein the matrix comprises a paper pad.

66. The method of claim 63, wherein the matrix comprises a sponge.

5 67. A method of packaging foodstuff, comprising:
providing a foodstuff;
providing a packaging material comprising at least one bacteriophage; and
packaging the foodstuff with the packaging material.

68. The method of claim 67, wherein the step of providing a packaging
10 material comprising at least one bacteriophage comprises:
impregnating the packaging material with at least one bacteriophage such
that the at least one bacteriophage is released from the packaging material at a
desired rate.

69. The method of claim 67, wherein the step of providing a packaging
15 material comprising at least one bacteriophage comprises:
spraying the at least one bacteriophage on the packaging material.

70. The method of claim 67, wherein the step of providing a packaging
material comprising the at least one bacteriophage comprises:
coating the packaging material with the at least one bacteriophage.

20 71. A method for foodstuff sanitation with at least one bacteriophage,
comprising:
providing a foodstuff; and
applying the at least one bacteriophage to the foodstuff.

72. The method of claim 71, wherein the foodstuff comprises poultry.
73. The method of claim 71, wherein the foodstuff comprises beef.
74. The method of claim 71, wherein the foodstuff comprises pork.
75. The method of claim 71, wherein the foodstuff comprises fish.
- 5 76. The method of claim 71, wherein the foodstuff comprises at least one of
bacon, ham, smoked meats, smoked fish, and sausages.
77. The method of claim 71, wherein the step of applying the at least one
bacteriophage to the foodstuff comprises:
applying the at least one bacteriophage to the foodstuff in an effective
10 amount to reduce the colonization of pathogenic bacteria susceptible to the
bacteriophage by at least one log.
78. The method of claim 77, wherein the pathogenic bacteria includes at
least one of *C. botulinum*, *Salmonella*, and 0157:H7.
79. The method of claim 71, wherein the step of applying the at least one
15 bacteriophage to the foodstuff comprises:
spraying the at least one bacteriophage on the foodstuff.
80. The method of claim 71, wherein the step of applying the at least one
bacteriophage to the foodstuff comprises:
immersing the foodstuff in a liquid including the at least one bacteriophage.
- 20 81. A method for decontamination using at least one bacteriophage,
comprising:

applying at least one bacteriophage to an area contaminated with at least one pathogenic bacteria.

82. The method of claim 81, wherein the step of applying at least one bacteriophage to an area contaminated with at least one pathogenic bacteria
5 comprises applying the at least one bacteriophage to the contaminated area in an effective amount to reduce the colonization of the pathogenic bacteria susceptible to the bacteriophage by at least one log.

83. The method of claim 81, wherein the step of applying at least one bacteriophage to an area contaminated with at least one pathogenic bacteria
10 comprises spraying the at least one bacteriophage on the area.

84. The method of claim 81, wherein the step of applying at least one bacteriophage to an area contaminated with at least one pathogenic bacteria comprises covering the area with the at least one bacteriophage.

85. The method of claim 81, wherein the area includes at least one of an
15 interior surface of a building and an exterior surface of a building.

86. The method of claim 81, wherein the area includes an area of land.

87. The method of claim 81, wherein the area includes a body of water.